

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

San Diego, California  
July 31, 2003

MS PATENT APPLICATION  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

## **INFORMATION DISCLOSURE STATEMENT**

Dear Sir or Madam:

In accordance with 37 C.F.R. § 1.56, Applicant makes the below-listed documents of record in the above-identified application. In accordance with 37 C.F.R. § 1.97, this statement is not to be construed as a representation that a search has been made, and is not a representation that the information cited is effective as prior art to the application or is material to patentability.

**CERTIFICATE OF EXPRESS MAILING**

I hereby certify that this correspondence and anything being referred to as enclosed herein is being deposited with the United States Postal Service via "Express Mail Post Office to Addressee" Label No. EV 292297565 US, with sufficient postage in an envelope addressed to MS PATENT APPLICATION, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 31st day of July 2003.

**Signature:**

U.S. Patent Documents

1. U.S. Patent No. 3,678,204 to Henning F. Harmuth, issued July 18, 1972;
2. U.S. Patent No. 3,728,632 to Gerald F. Ross, issued April 17, 1973;
3. U.S. Patent No. 4,447,747 to David P. LaPotin, issued May 8, 1984;
4. U.S. Patent No. 4,641,317 to Larry W. Fullerton, issued February 3, 1987;
5. U.S. Patent No. 4,782,324 to Marcos A. Underwood, issued November 1, 1988;
6. U.S. Patent No. 4,979,186 to Larry W. Fullerton, issued December 18, 1990;
7. U.S. Patent No. 5,115,409 to Richard Stepp, issued May 19, 1992;
8. U.S. Patent No. 5,146,616 to Raymond Tang et al., issued September 8, 1992;
9. U.S. Patent No. 5,157,559 to Jefferey A. Gleason et al., issued October 20, 1992;
10. U.S. Patent No. 5,363,108 to Larry W. Fullerton, issued November 8, 1994;
11. U.S. Patent No. 5,515,014 to Dennis L. Troutman, issued May 7, 1996;
12. U.S. Patent No. 5,574,755 to Charles J. Persico, issued November 12, 1996;
13. U.S. Patent No. 5,587,687 to William J. Adams, issued December 24, 1996;
14. U.S. Patent No. 5,635,863 to John J. Price, Jr., issued June 3, 1997;
15. U.S. Patent No. 5,677,927 to Larry W. Fullerton et al., issued October 14, 1997;
16. U.S. Patent No. 5,687,169 to Larry W. Fullerton, issued November 11, 1997;
17. U.S. Patent No. 5,687,200 to Gerald M. Berger, issued November 11, 1997;
18. U.S. Patent No. 5,708,377 to Donald A. Bradley, issued January 13, 1998;
19. U.S. Patent No. 5,714,954 to Herman Chung et al., issued February 3, 1998;
20. U.S. Patent No. 5,768,700 to Jaime E. Kardontchik, issued June 16, 1998;

21. U.S. Patent No. 5,847,623 to Aristotle Hadjichristos, issued December 8, 1998;
22. U.S. Patent No. 5,872,446 to Hayden C. Cranford, Jr. et al., issued February 16, 1999;
23. U.S. Patent No. 5,900,747 to Herbert Brauns, issued May 4, 1999;
24. U.S. Patent No. 5,986,501 to Hamid Rafati, issued November 16, 1999;
25. U.S. Patent No. 6,026,125 to J. Frederick Lerrick, Jr. et al., issued February 15, 2000;
26. U.S. Patent No. 6,031,862 to Larry W. Fullerton et al., issued February 29, 2000;
27. U.S. Patent No. 6,043,943 to Francesco Rezzi et al., issued March 28, 2000;
28. U.S. Patent No. 6,054,889 to Kevin W. Kobayashi, issued April 25, 2000;
29. U.S. Patent No. 6,061,551 to David F. Sorrells et al., issued May 9, 2000;
30. U.S. Patent No. 6,078,277 to Eric Cheng et al., issued June 20, 2000;
31. U.S. Patent No. 6,087,871 to Alexei F. Kardo-Syssoev et al., issued July 11, 2000;
32. U.S. Patent No. 6,118,339 to Charles R. Gentzler, issued September 12, 2000;
33. U.S. Patent No. 6,178,217 B1 to Anthony Defries et al., issued January 23, 2001;
34. U.S. Patent No. 6,6281,822 B1 to Edwin C. Park, issued August 28, 2001;
35. U.S. Patent No. 6,351,652 B1 to James S. Finn et al., issued February 26, 2002;
36. U.S. Patent No. 6,356,224 B1 to Paul D. Wohlfarth, issued March 12, 2002;
37. U.S. Patent No. 6,433,720 B1 to Joel M. Libove, issued August 13, 2002;
38. U.S. Patent No. 6,539,213 B1 to James L. Richards et al., issued March 25, 2003;
39. U.S. Patent No. 6,580,902 B1 to David F. Sorrells et al., issued June 17, 2003;

40. U.S. Patent Application No. 2001/0019313 A1 to Takeshi Takahashi, published September 6, 2001;
41. U.S. Patent Application No. 2003/0048212 A1 to Joel M. Libove et al., published March 13, 2003;

Foreign Patent Documents

42. WO 01/93434 A2 to Martin Rofheart et al., issued December 6, 2001;

Other Documents

43. FERNANDO RAMIREZ-MIRELES et al., "N-Orthogonal Time-Shift-Modulated Codes for Impulse Radio," Communication Sciences Institute, Department of Electrical Engineering-Systems, University of Southern California, Los Angeles, CA 90089-2565 USA, Pages 1-4;
44. FERNANDO RAMIREZ-MIRELES, "On Performance of Ultra Wideband Signals in Gaussian Noise and Dense Multipath," Paper 99C265, Accepted for Publication in the IEEE Transactions on Vehicular Technology, Pages 1-9;
45. HENNING F. HARMUTH, "Fundamental Limits for Radio Signals With Large Bandwidth," IEEE Transactions on Electromagnetic Compatibility, Vol. EMC-23, No. 1, February 1981, Pages 37-43;
46. HENNING F. HARMUTH, "Frequency-Sharing and Spread-Spectrum Transmission with Large Relative Bandwidth," IEEE Transactions on Electromagnetic Compatibility, Vol. EMC-20, No. 1, February 1978, Pages 232-239;
47. HENNING F. HARMUTH, "Applications of Walsh functions in communications," IEEE Spectrum, November 1969, Pages 82-91;
48. AETHER WIRE & LOCATION, INC., ROBERT FLEMING et al., "Integrated, Low-Power, Ultra-Wideband Transceivers for Distributed Position Location and Communication," Technical Abstracts of Proposal to Defense Advanced Research Projects Agency (DARPA), Part I - Technical Proposal, 1998, Pages 1-52; and

49. AETHER WIRE & LOCATION, INC., ROBERT FLEMING et al., "Low-Power, Miniature, Distributed Position Location and Communication Devices Using Ultra-Wideband, Nonsinusoidal Communication Technology," Semi-Annual Technical Report Prepared for: ARPA/FBI, July 1995, Pages 1-40.

\* \* \*

Copies of the above-listed documents are listed on the accompanying Form PTO/SB/08A, and are enclosed.

It is respectfully requested that these documents be (1) fully considered by the U.S. Patent and Trademark Office in the examination of the above-identified application; and (2) printed on any patent that may issue on this application. It is also respectfully requested that a copy of Form PTO/SB/08A, as considered and initialed by the Examiner, be returned to the undersigned with the next communication in accordance with M.P.E.P. § 609.

This Information Disclosure Statement is filed before the mailing of a first Office Action, pursuant to 37 C.F.R. §1.97(b). Therefore, it is believed that no fee is required in connection with this submission. In the event that a fee is required, please charge our Deposit Account No. 50-2298, in the name of Luce, Forward, Hamilton & Scripps LLP.

Respectfully submitted,

Date

July 31, 2003

  
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Substitute for form 1449A/PTO		<i>Complete if Known</i>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(use as many sheets as necessary)</i>		<b>Application Number</b>	TBD
		<b>Filing Date</b>	July 31, 2003
		<b>First Named Inventor</b>	Steven MOORE et al.
		<b>Art Unit</b>	TBD
		<b>Examiner Name</b>	TBD
Sheet	1	of	4
		Attorney Docket Number	
		30287-94	

## **U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code <sup>2</sup> (if known)	MM-DD-YYYY		
		US- 3,678,204	07/18/1972	HARMUTH	
		US- 3,728,632	04/17/1973	ROSS	
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Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

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		US- 6,281,822 B1	08/28/2001	PARK	
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		Filing Date	July 31, 2003
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		Group Art Unit	TBD
		Examiner Name	TBD
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#### **OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

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		<b>Filing Date</b>	July 31, 2003
		<b>First Named Inventor</b>	Steven MOORE et al.
		<b>Art Unit</b>	TBD
		<b>Examiner Name</b>	TBD
Sheet	3	of	4
		Attorney Docket Number	

U.S. PATENT DOCUMENTS

## FOREIGN PATENT DOCUMENTS

<b>Examiner Signature</b>		<b>Date Considered</b>	
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1 Applicant's unique citation designation number (optional).<sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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		<b>Filing Date</b>	July 31, 2003
		<b>First Named Inventor</b>	Steven MOORE et al.
		<b>Group Art Unit</b>	TBD
		<b>Examiner Name</b>	TBD
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## **OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS**

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